CLAIMS

What is claimed is:

1. A radio frequency (RF) transceiver comprising a transmitter (TX) and a receiver (RX) for coupling to an antenna, said TX having a polar architecture that comprises at least one programmable delay element in at least one of an amplitude modulation (AM) path and a phase modulation (PM) path, further comprising an RF connection between an output of said TX and an input of said RX, and a controller that is responsive to an output of said RX when receiving a signal through said RF connection for determining at least one delay value for use in programming said at least one programmable delay element.

2. An RF transceiver as in claim 1, where said RX comprises means for measuring an effect of a delay mismatch between said AM path and said PM path.

3. An RF transceiver as in claim 2, where said measuring means comprises a power measurement block.

4. An RF transceiver as in claim 2, where said measuring means comprises an Adjacent Channel Leakage Ratio (ACLR) power measurement block.

5. An RF transceiver as in claim 4, where said controller determines said delay value as being a value that minimizes the ACLR.

6. An RF transceiver as in claim 4, where said RX is tuned, when receiving a signal through said RF connection, to an RX carrier frequency that is about one channel spacing away from a TX carrier frequency.

7. An RF transceiver as in claim 2, where said measuring means comprises an Own-Channel Power (OCP) measurement block.

8. An RF transceiver as in claim 7, where said controller determines said delay value as

being a value that maximizes the OCP.

9. An RF transceiver as in claim 7, where said RX is tuned, when receiving a signal through said RF connection, to an RX carrier frequency that is substantially equal to a TX carrier frequency.

10. An RF transceiver as in claim 2, where said measuring means comprises a signal quality measurement block.

11. An RF transceiver as in claim 2, where said measuring means comprises a Bit Error Ratio (BER) measurement block.

12. An RF transceiver as in claim 11, where said controller determines said delay value as being a value that minimizes the BER.

13. An RF transceiver as in claim 11, where said RX is tuned, when receiving a signal through said RF connection, to an RX carrier frequency that is substantially equal to a TX carrier frequency.

14. An RF transceiver as in claim 1, where said RX comprises at least one programmable filter, and where said controller programs said filter to have characteristics that differ when receiving a signal through said RF connection than when receiving a signal through said antenna.

15. An RF transceiver as in claim 2, where said controller, during operation of said means for measuring the effect of the delay mismatch between said AM path and said PM path, programs said at least one programmable delay element so as to have a plurality of different delay values, and stores a recorded measurement value in combination with a current delay value.

16. A method to operate a radio frequency (RF) transceiver for coupling to an antenna, said RF transceiver including an envelope restoration (ER) transmitter (TX) and a

receiver (RX), comprising:

providing said TX with at least one programmable delay element in at least one of an amplitude modulation (AM) path and a phase modulation (PM) path;

making an RF connection between an output of said TX and an input of said RX; and

responsive to an output of said RX when receiving a signal through said RF connection, determining at least one delay value for use in programming said at least one programmable delay element.

17. A method as in claim 16 where making an RF connection further comprises measuring an effect of a delay mismatch between said AM path and said PM path for use in determining said at least one delay value.

18. A method as in claim 17, where measuring performs a power measurement.

19. A method as in claim 17, where measuring performs an Adjacent Channel Leakage Ratio (ACLR) power measurement.

20. A method as in claim 19, where said delay value is determined as being a value that minimizes the ACLR.

21. A method as in claim 19, further comprising tuning said RX, when receiving a signal through said RF connection, to an RX carrier frequency that is about one channel spacing away from a TX carrier frequency.

22. A method as in claim 17, where measuring performs an Own-Channel Power (OCP) measurement.

23. A method as in claim 22, where said delay value is determined as being a value that maximizes the OCP.

24. A method as in claim 22, further comprising tuning said RX, when receiving a signal through said RF connection, to an RX carrier frequency that is substantially equal to a TX carrier frequency.

25. A method as in claim 17, where measuring performs a signal quality measurement.

26. A method as in claim 17, where measuring performs a Bit Error Ratio (BER) measurement.

27. A method as in claim 26, where said delay value is determined as being a value that minimizes the BER.

28. A method as in claim 26, further comprising tuning said RX, when receiving a signal through said RF connection, to an RX carrier frequency that is substantially equal to a TX carrier frequency.

29. A method as in claim 16, where said RX comprises at least one programmable filter, further comprising programming said filter to have characteristics that differ when receiving a signal through said RF connection than when receiving a signal through said antenna.

30. A method as in claim 17, where measuring the effect of the delay mismatch between said AM path and said PM path comprises programming said at least one programmable delay element so as to have a plurality of different delay values, and storing a recorded measurement value in combination with a current delay value.

31. A method to calibrate a radio frequency (RF) transceiver that includes an envelope restoration (ER) transmitter (TX) and a receiver (RX), comprising:

providing said TX with at least one programmable delay element in at least one of an amplitude modulation (AM) path and a phase modulation (PM) path;

making an RF connection between an output of said TX and an input of an external test apparatus; and

responsive to an output of said external test apparatus when receiving a signal through said RF connection, determining at least one delay value for use in programming said at least one programmable delay element.

32. A method as in claim 31 where making an RF connection further comprises measuring an effect of a delay mismatch between said AM path and said PM path for use in determining said at least one delay value.

33. A method as in claim 32, where measuring performs at least one of a power measurement and a signal quality measurement.

34. A method as in claim 32, where measuring performs at least one of: an Adjacent Channel Leakage Ratio (ACLR) power measurement, where said delay value is determined as being a value that minimizes the ACLR; an Own-Channel Power (OCP) measurement, where said delay value is determined as being a value that maximizes the OCP; and a Bit Error Ratio (BER) measurement, where said delay value is determined as being a value that minimizes the BER.

35. A method as in claim 32, where measuring comprises one of outputting measurement results from said external test apparatus, and determining the at least one delay value for use in programming said at least one programmable delay element based on the outputted measurement results, or determining within the external test apparatus the at least one delay value based on the measurement results, and outputting the at least one delay value from the external test apparatus.